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Aquatic Life Use Designation Discussion: "New vs. Old"

The purpose of this document is to provide the EPA with additional explanation of the aquatic life use designation modifications as approved by the EPC on January 17, 2006. Specifically, the document will describe the intended usage for Warm Water - Type 1 (Class B(WW-1)), Warm Water – Type 2 (Class B(WW-2)), and Warm Water – Type 3 (Class B(WW-3)) as compared to the current warm water aquatic life use designations (Class B(WW) and Class B(LR)).

Historical Background:
The previous warm water aquatic life use designations are as follows:

Significant Resource Warm Water **(Class B(WW))** – Waters in which temperature, flow and other habitat characteristics are suitable for the maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species,

Physical and biological characteristics for B(WW) streams as described by the "old" WWP:

Significant Resource streams range in size from small and medium-sized streams to large rivers (e.g., main-stem segments of the Des Moines, Iowa, Cedar, and Wapsipinicon rivers). Significant Resource streams have the flow stability and habitat necessary to support relatively diverse fish communities that include harvestable populations of warmwater game fish.

Significant Resource streams have relatively complex fish communities. In addition to the habitat generalists, species which require specific habitat types (e.g., riffles) are present, and species from several trophic levels are represented (e.g., omnivore, herbivore, piscivore). Fish communities of Significant Resource streams include piscivorous fish, such as channel catfish, walleye, and smallmouth bass that can support a recreational fishery (see Appendix 1 for a list of warmwater game fish in Iowa).

Limited Resource Warm Water **(Class B(LR))** – Waters in which flow or other physical characteristics limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption.

Physical and biological characteristics for B(LR) streams as described by the "old" WWP:

Limited Resource streams are small and medium-sized streams (typically, average width from 5-15 feet; average depth from 0.5-2 feet) that have the habitat and flow stability to support an aquatic community throughout the year but do not have the

habitat and flow stability to support harvestable populations of game fish (i.e., a balanced warmwater community).

Limited Resource streams support fish communities dominated (in terms of biomass and numbers) by minnows and suckers (families Cyprinidae and Catostomidae). Fish species tolerant of environmental extremes are likely to be present.

The goal of the previous designation effort was to determine the appropriate aquatic life use of all warmwater streams in Iowa and to designate or classify segments of these streams as either General Use, Limited Resource, or Significant Resource waters.

The following objectives were in place to meet this goal:

1. on the basis of known recreational fisheries (e.g., as described in Harlan et al. 1987 and DNR 1990), designate all border rivers and major interior rivers in Iowa as Class B(WW) Significant Resource waters.

2. conduct field evaluations of the remaining streams, primarily the small and mid-sized streams, to determine the appropriate warmwater stream use designation (B(WW), B(LR), or General Use).

Only those segments that are wadable in the majority of the wetted surface area were sampled. Streams too deep to effectively sample by crews wearing chest waders were considered for a Significant Resource designation.

Appropriate use designations for streams tended to follow a longitudinal pattern: intermittent headwater segments are typically General Use waters, middle segments have relatively stable flow and support Limited Resource uses, and lower portions of a drainage basin may have the deep pools and stable flows necessary to support Significant Resource uses.

Rule Making:
The use designation changes approved by the EPC were initiated in response to guidance from the EPA that suggested a new aquatic life use designation for intermittent streams with perennial pools. The addition of this new use (Class B(WW-3)) required a new warm water stream use assessment protocol to reflect the change. The current warm water use designations and old warm water protocol were relatively dated and felt by some to be technically unclear. In response, the department created the warm water protocol committee with the intent of strengthening the current designations and providing a guidance document for assessing warm water rivers and streams for the purpose of providing supporting information for the creation of use assessment and attainability analysis documents.

As a result of the work of this committee and coordination with EPA, the department proposed amendments to the WQS that renamed the current Class B(WW) and B(LR) use designations to: Class B(WW-1) - Type 1, and Class B(WW-2) - Type 2, respectively. The Class B(WW-1) use designation is defined similarly to the current significant resource warm water use designation. The Class B(WW-2) use designation is defined

similarly to the current limited resource warm water use designation. The new Class B(WW-3) use designation was created to indicate those stream reaches with unique hydrological and physical habitats (non-flowing pools) while supporting the Class B(LR)-type (now B(WW-2)-type) of aquatic uses.

The use designations were modified as follows:

~~*Significant resource*~~ *Wwarm water – Type 1 (Class "B(WW-1)").* Waters in which temperature, flow and other habitat characteristics are suitable ~~for the~~ to maintain ~~maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species.~~ warm water game fish populations along with a resident aquatic community that includes a variety of native non-game fish and invertebrate species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

~~*Limited resource*~~ *Wwarm water – Type 2 (Class "B(~~LR~~WW-2)").* Waters in which flow or other physical characteristics ~~limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption.~~ are capable of supporting a resident aquatic community that includes a variety of native non-game fish and invertebrate species. The flow and other physical characteristics limit the maintenance of warm water game fish populations. These waters generally consist of small perennially flowing streams.

Warm water – Type 3 (Class "B(WW-3)"). Waters in which flow persists during periods when antecedent soil moisture and ground water discharge levels are adequate; however, aquatic habitat typically consists of non-flowing pools during dry periods of the year. These waters generally include small streams of marginally perennial aquatic habitat status. Such waters support a limited variety of native fish and invertebrate species that are adapted to survive in relatively harsh aquatic conditions.

One of primary goals of these changes was to ensure that the modifications to the existing warm water aquatic life use designations (Class B(WW) and B(LR)) were **NOT** modified to the extent that they were considered "new" use designations. The department was careful to provide additional clarity to these use designations while maintaining the current structure of how streams are designated for B(WW) and B(LR) uses in the Surface Water Classification document. Clearly, this is done for implementation and practical purposes. The idea is to be able to simply transfer the current stream segments designated as either B(LR) or B(WW) into B(WW-2) and B(WW-1), respectively. This is possible since the department provided EPA with scientific justification when these streams were originally designated in the past while the accompanying chemical criteria for each use designation has been reviewed and accepted by EPA. Since the Department did not intend to or see the need to alter any aquatic life designation for any of the Class B(WW) or Class B(LR) streams while amending the definitions, the Department and the citizens of Iowa do not perceive the amended definitions to reflect new designations.

Specifically, the current B(LR) designation used the term "balanced warm water community". After individual discussions and concurrence with representatives from WQS, WQA, and Fisheries, revisions were drafted to these existing definitions that were agreeable. The basis of the changes was to provide simpler, clear definitions that 1) makes logical & practical sense and 2) is easy for most people, especially the public, to understand.

The definition of "balanced warm water community" in the old warm water protocol read as follows:

Balanced warmwater community: *a balanced warmwater fish community can sustain a harvest of good-sized fish in proportion to the productivity of the water (Swingle 1950). Balanced populations of both piscivorous sport fish (e.g., channel catfish or smallmouth bass) and other sport fish (e.g., carp or bullheads) are present. The concept of a balanced warmwater community implies that sport fish populations reproduce and grow in the habitats from which they are harvested.*

From this definition it is clear that "balanced" implied that game fish populations are being maintained in a waterbody. While this term is not specifically used in the current B(WW) designation, it is heavily documented in the previous warm water protocol and is evidenced by the way the department has designated rivers and streams over the last 30 years. Game fish presence has always been a part of warm water stream use designations for the purpose of specifically characterizing and providing specificity to the types of warm water streams present in Iowa. The department further reflects this specificity by adopting chemical criteria intended to protect these aquatic life uses. In Class B(LR) streams, the presence of game fish populations is limited due to inadequate flow or other habitat characteristics to sustain those populations. The aquatic communities present in B(LR)-type streams are typically non-game resident native species and these communities are "balanced" for this 'limited' type of stream. However, "balanced" historically implied the presence of a variety of game fish, clearly associated with the Class B(WW) waters.

To make things more clear while preserving the original intent of current use designations, the definitions were modified to replace the "balanced warm water community" with more detailed language that serves to more clearly describe what the current use designations are intended to protect. This serves to make these designations more transparent not only to the department, but will make it easier for the public to understand and visualize how the department will delineate certain stream segments in the field.

Additional language was added to the current B(LR) designation to further define what a B(LR)-type stream was intended to encompass. Streams with no fish and just macroinvertebrates is a type of "monoculture" and this type of community was never intended to be considered for a B(LR)-type designation unless that use is attainable. You can find this type of community in a bucket of water or birdbath if you wait long enough. Truly, B(LR) was intended to include diverse populations of typically non-game resident

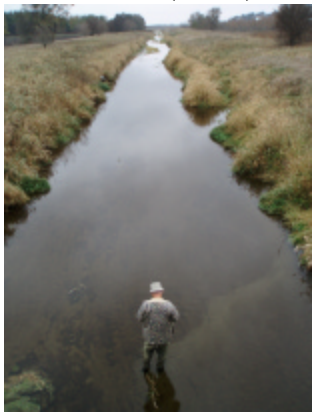
native fish species. It is understood that adequate habitat may be available but a barrier may prevent fish from inhabiting an area. These situations that have potential to house diverse populations of typically non-game resident native fish species can be considered for a B(WW-2) designation.

Also, new language was included for both Class B(WW-1) and Class B(WW-2) that provides a visual description of the size of the water body these designations are intended to protect. This new language is consistent with current Class B(WW) and Class B(LR) designations which is apparent in the manner these streams were designated in the past and as described in the previous WWP. Class B(WW) or B(WW-1) waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams (e.g. Des Moines River, Middle Branch Boone River). Class B(LR) or B(WW-2) waters generally consist of small perennially flowing streams (e.g. Keg Creek, Squaw Creek).

The department is concerned with EPA insistence that B(WW-1) and B(WW-2) are the same and that presence or absence is the only distinguishing difference. This document is explicitly clear that these are biologically based designations which encompass physical and biological differences of these waters. The criteria to protect these waters are a moot point. The criteria do not drive the use designation process and are developed independently of the use designations.

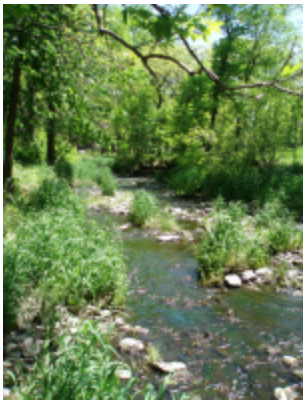
It appears that the EPA is looking solely at the "tone" of the designations and not the designations themselves, the rationale or the intent. B(LR) and B(WW-2) are same use designation. Put simply, B(LR) had "the glass is half empty" definition while B(WW-2) has "the glass is half full" definition. This tone was changed in the process per environmental group comments. There was no intent from these groups or the DNR to change the applicability of the use. These uses are independent of the quality of the stream. B(LR)/B(WW2) apply to pristine waters and drainage ditches (see example below). The water bodies displayed below receive the same designation and receive equal protection per the criteria in the WQS. The existing quality has no current relevance in the Iowa stream designation process. The same applies for B(WW-1) & B(WW-3) even though B(WW-3) may appear to have a negative tone. Tone does not dictate applicability of the use.

Lizard Cr. (Ditch)



B(WW-2) / B(LR)

Unnamed Cr. (Pristine)



B(WW-2) / B(LR)

Unnamed Cr. (Impaired)

B(WW-2) / B(LR)